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LAW OFFICES OF MAXIMILLIAN R. PETERSON
P.O. BOX 93005
AUSTIN, TX 78709-3005

EXAMINER	
NGUYEN, LEE	

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte DONALD A. KERTH and
G. DIWAKAR VISHAKHADATTA

Appeal 2009-004659
Application 10/624,456
Technology Center 2600

Decided: June 19, 2010

Before ROBERT E. NAPPI, JOHN C. MARTIN, and JOSEPH F. RUGGIERO, *Administrative Patent Judges*.

MARTIN, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

This is an appeal under 35 U.S.C. § 134(a) from the Examiner's rejection of claims 1-20, which are all of the pending claims.

We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

A. Appellants' invention

Appellants' invention is directed to reducing interference in an RF (radio frequency) apparatus that includes non-linear circuitry or blocks, such as switched-capacitor networks or filters, noise-shaping converters, analog-to-digital converters (ADCs), digital-to-analog converters (DACs), multipliers or modulators, and the like. Specification 5:20-6:2.

Figure 7 is reproduced below.

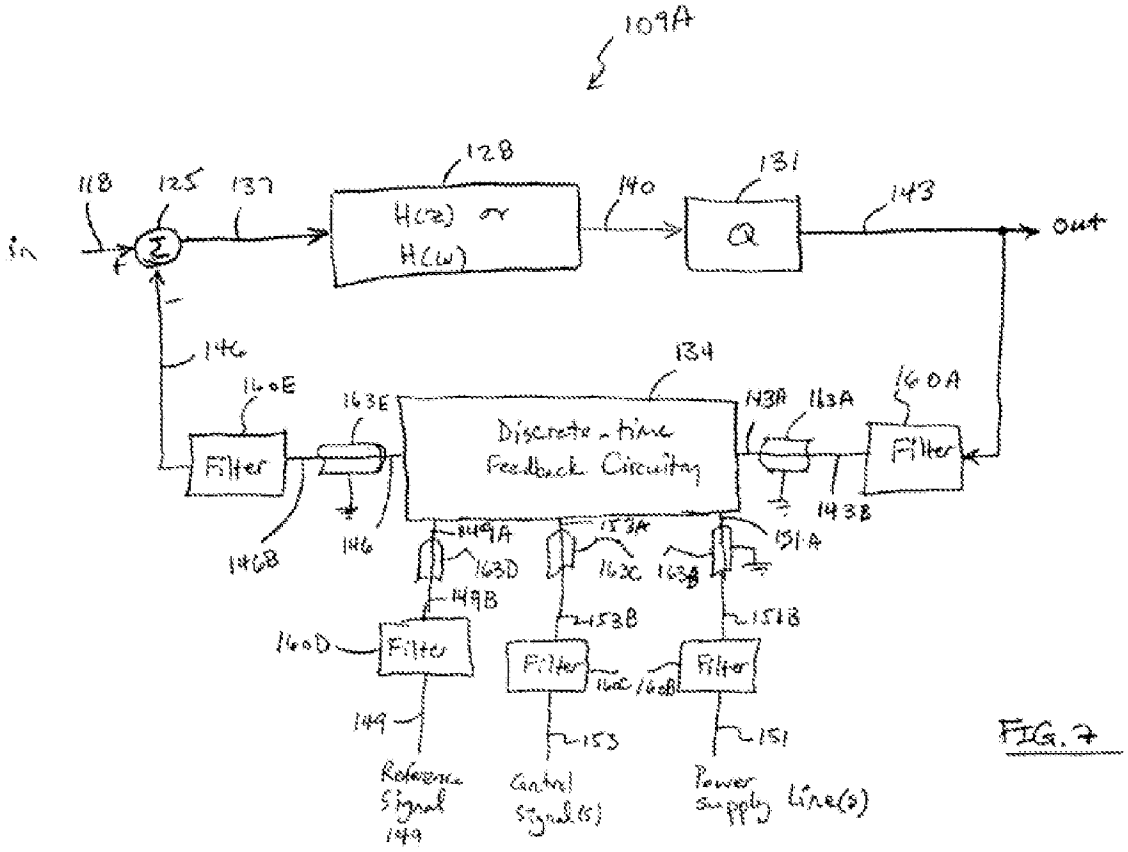

FIG. 7

Figure 7 depicts a block diagram of a converter 109A that includes Appellants' interference reduction or elimination apparatus (*id.* at 19:19-21).

Referring specifically to feedback circuitry 134, a shield (including conduits) 163A provides a shielded signal 143A to feedback circuitry 134 (*id.* at 20:7-8). Another shield (including conduits) 163E provides a shielded output signal 146B from feedback circuitry 134 to a filter 160E (*id.* at 21:1-3).

B. The claims

The independent claims before us are claims 1, 3, and 5, which read as follows:

> 1. A converter in a radio-frequency (RF) apparatus, the converter comprising a feedback circuitry having a shielded input and a shielded output, wherein the shielded input and the shielded output tend to reduce interference in the converter.
>
> 3. A method of reducing interference in a non-linear circuit in a radio-frequency (RF) apparatus, wherein the non-linear circuit has an input and an output, the method comprising:
>
> shielding an input of the non-linear circuit; and
>
> shielding an output of the non-linear circuit.
>
> 5. A radio-frequency (RF) apparatus, comprising:
>
> a non-linear signal-processing circuit;
>
> a first shield that shields an input of the non-linear signal-processing circuit; and
>
> a second shield that shields an output of the non-linear signal-processing circuit.

Claims App. (Br.[1] 23).

[1] Appeal Brief filed May 22, 2008.

C. The references

The Examiner relies on the following references:

Fletcher	US 3,100,282	Aug. 6, 1963
Sander et al. ("Sander")	US 6,198,347 B1	Mar. 6, 2001

D. The rejections

Claims 1 and 2 stand rejected under 35 U.S.C. § 102(b) for anticipation by Fletcher. Final Action 2, para. 2.

Claims 3-20 stand rejected under 35 U.S.C. § 103(a) for obviousness over Fletcher in view of Sander. *Id.* at 3, para. 4.

THE ANTICIPATION REJECTION

Fletcher discloses a shielding amplifier circuit. Fletcher, title.

Figure 1 is reproduced below.

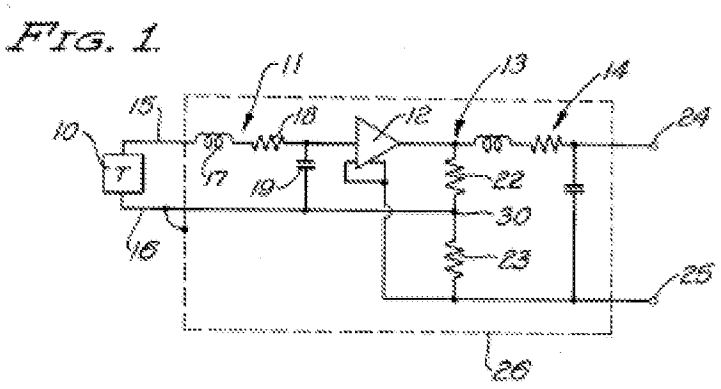

Figure 1 is a schematic diagram of a preferred embodiment of Fletcher's invention (col. 2, ll. 48-49).

Transducer 10 may be conventional in nature, such as a strain gauge, a potentiometer, a thermocouple, a varistor, or the like (col. 2, ll. 54-55). Input filter 11 is a low pass filter (col. 2, l. 58). Amplifier 12 is "conventional in design" and "ha[s] a negative gain that is very high so that the over-all gain of the circuit can be controlled by the relative values of resistors 22, 23, which comprise the output circuit 13" (col. 3, ll. 3-6). A feedback voltage developed at feedback point 30 is coupled to the input of amplifier 12 via a feedback loop comprising lead 16, transducer 10, and lead 15 (col. 3, ll. 9-11, 33) and also comprising input filter 11, as shown in the figure. The dashed-line box 26 represents a shield that is positioned around all of the circuit elements having a significant impedance to ground (col. 3, ll. 63-65).

Figure 2 is reproduced below.

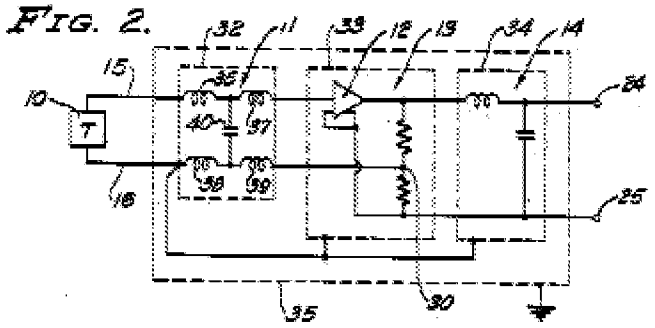

Figure 2 shows several alternatives to the Figure 1 embodiment (col. 2, ll. 50-51). Figure 2 shows a shield 32 enclosing input filter 11, a shield 33 enclosing amplifier 12 and output circuit 13, a shield 34 enclosing output filter 14, and a shield 35 enclosing shields 32-34 (col. 4, ll. 44-47).

The Examiner has characterized Fletcher as

> teach[ing] a converter in a radio-frequency (RF) apparatus, the converter comprising a feedback circuitry (30, 16, 10, 15, see figures 1-2, col. 2, lines 20-25) having a shielded input 32 and a shielded output 34, wherein the shielded input and the shielded output inherently tend to reduce interference in the converter.

Final Action 2, para. 2. Appellants make a number of arguments against the anticipation rejection. One argument is that Fletcher nowhere discusses using transducer 10 as part of an RF apparatus (Br. 12). The Examiner responded to this argument by stating that the recitation of "a radio-frequency (RF) apparatus" in claim 1 has not been given patentable weight because the recitation occurs in the preamble and

> [a] preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone.

(Answer 10, citing *In re Hirao*, 535 F.2d 67 (CCPA 1976), and *Kropa v. Robie*, 187 F.2d 150, 152 (CCPA 1951)). Appellants, who did not file a reply brief, have not addressed, let alone shown any error in, this position of the Examiner.

In another argument, Appellants, after quoting the Examiner's statement that "the transducer of Fletcher reads on the claimed converter" (Final Action 7), argue that Fletcher's transducer 10 (if considered to be the recited "converter") fails to include a feedback circuit having a shielded input and output, as required by claim 1, and that Fletcher instead describes transducer 10 as *part* of a feedback circuit (Br. 10). The Examiner responded by explaining that this argument misconstrues the rejection,

which instead is based on reading the recited converter "on the whole circuit of Fig. 1 or Fig. 2 that include[s] the feedback circuitry 30, 16, 10 and 15" (Answer 10). Appellants have not addressed, let alone demonstrated any error in, this position of the Examiner.

Regarding the "wherein" clause of claim 1, the Examiner alternatively (1) concluded that this clause is entitled to no weight (citing MPEP § 2114.04)[2] and (2) found that the clause, if given weight, is satisfied by Fletcher's disclosed shields.[3] Final Action 7. Regarding position (1), Appellants, after correctly noting that MPEP § 2111.04 provides that the determination of whether a wherein clause is a limitation in a claim "depends on the specific facts of the case," fault the Final Action for failing to provide any analysis of the applicability of § 2111.04 (Br. 13). The Examiner responded by explaining that "the term [sic; phrase] '<u>tend</u> to reduce interference in the converter' simply recites an in<u>tend</u>ed result and fails to limit to a particular structure" (Answer 12). Appellants have provided no response to this position of the Examiner.

As support for alternative position (2), the Examiner initially found that "the functional language of 'tend to reduce interference' can be performed by shielded structure of Fletcher" (Final Action 7). In response to Appellants' argument that this position of the Examiner "lacks a proper legal basis" (Br. 13), the Examiner more particularly explained that "the

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[2] Identified as "Section I, point d)" at page 11 of the Answer.
[3] Identified as "Section I, point c)" at page 10 of the Answer.

'tendency' to reduce interference is inherent to the shielding structure of Fletcher" (Answer 11). Appellants have provided no response to this inherency rationale.

For all of the above reasons, Appellants' arguments[4] fail to persuade us of any error in the rejection of claim 1 for anticipation by Fletcher. We are accordingly affirming the rejection of claim 1 and the anticipation rejection of dependent claim 2, which is not separately argued. *In re Nielson*, 816 F.2d 1567, 1572 (Fed. Cir. 1987).

THE OBVIOUSNESS REJECTION

The Examiner found that "Fletcher does not explicitly teach that the operational amplifier in the circuit is classified as class A or B (linear) or class C (non-linear) (Final Action 3-4)," finds that "Sander . . . teach[es] that, depend[ing] on design choice, operational amplifiers can be either linear class A or B amplifier[s] or non-linear class C amplifiers (col. 1, lines 27-67)" (Final Action 4), and concluded that it would have been obvious "to include non-linear circuit in the apparatus of Fletcher in order to reduce power consumption with a trading-off of linearity" (*id.*). This stated motivation apparently refers to Sander's column 1, lines 34-35 ("Generally

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[4] *See Ex parte Frye*, 94 USPQ2d 1072, 1075 (BPAI 2010) (precedential) ("If an appellant fails to present arguments on a particular issue — or, more broadly, on a particular rejection — the Board will not, as a general matter, unilaterally review those uncontested aspects of the rejection."). Designated as precedential at http://www.uspto.gov/ip/boards/bpai/decisions/prec/
(Continued on next page.)

speaking, power amplifiers are divided into two different categories, linear and non-linear.") and column 1, lines 52-53 ("Conventionally, efficiency is improved by trading-off linearity for increased efficiency.").

Appellants' argument (Br. 15) that Fletcher fails to teach an RF apparatus is unpersuasive for the same reasons as those given above in the discussion of claim 1.

Appellants also argue (*id.*) that the Examiner has failed to demonstrate that Fletcher's amplifier 12 is an "operational amplifier," as stated in the above-quoted passage bridging pages 3 and 4 of the Final Action. The Examiner responded to this argument by revising the rationale of the rejection so as to avoid characterizing Fletcher's amplifier 12 as an "operational amplifier" (Answer 12). Appellants have not addressed, let alone shown any error, in this revised rationale for the rejection.

The rejection of claim 3 is therefore affirmed, as is the rejection of independent claim 5, regarding which Appellants repeat (Br. 17-18) their claim 3 arguments.

For the foregoing reasons, we are also affirming the rejection of dependent claims 4, 6-14, and 18-20, whose limitations are not separately argued.

DECISION

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The rejection of claims 1 and 2 stand rejected under 35 U.S.C. § 102(b) for anticipation by Fletcher is affirmed.

The rejection of claims 3-20 under 35 U.S.C. § 103(a) for obviousness over Fletcher in view of Sander is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1). *See* 37 C.F.R. § 1.136(a)(1)(v) (2009).

AFFIRMED

gvw

LAW OFFICES OF MAXIMILLIAN R. PETERSON
P.O. BOX 93005
AUSTIN, TX 78709-3005